

Applicant: Boulineau et al.
Serial No.: 10/680,658
Group Art Unit: 2873

PATENT
Docket No.: 10-9429

AMENDMENTS TO THE CLAIMS

Please amend Claims 1, 22 and 32 as set forth below. Claims 1-34 and 37-45 remain pending upon entry of this amendment. No new matter is added by these amendments.

Listing of Claims

1. (Currently amended) An optical element for use in a mold for an injection molded lens comprising: a first layer having an outer side and ~~and~~ an inner side, said first layer having a first size; a second, functional layer having a second size; said second, functional layer disposed adjacent said inner side of said first layer; and, wherein said second size is smaller than said first size and smaller than an inner diameter of said mold.
2. (Original) An optical element according to claim 1, wherein said second size has a diameter that is smaller than a diameter of said first size.
3. (Original) An optical element according to claim 2, wherein said second size diameter is less than said first size diameter within a range of approximately 0.5 mm to 5 mm.
4. (Original) An optical element according to claim 1, wherein said second, functional layer is selected from a group comprising: a polarizing layer, a photochromic layer, a melanin layer, a mirror layer, a color management layer, an infrared filter and a reflector layer and any combinations thereof.
5. (Original) An optical element according to claim 1, wherein said first layer is a functional layer.
6. (Original) An optical element according to claim 5, wherein said first layer is selected from a group comprising: a polarizing layer, a photochromic layer, a melanin layer, a mirror layer, a color management layer, an infrared filter and a reflector layer and any combinations thereof.

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7. (Original) An optical element according to claim 5, wherein said first layer is selected from a group comprising: a hard-coat layer, an anti-reflection layer, an anti-fog layer, a mirror layer, and a coloring layer.
8. (Original) An optical element according to claim 1, wherein said first layer is a resinous layer.
9. (Original) An optical element according to claim 1, further comprising a third layer disposed adjacent said second, functional layer, said third layer having a third size.
10. (Original) An optical element according to claim 9, wherein said third size has a diameter that is substantially equal to a diameter of said first size.
11. (Original) An optical element according to claim 9, wherein said third size has a diameter that is substantially equal to a diameter of said second size.
12. (Original) An optical element according to claim 9, wherein said second, functional layer is selected from a group comprising: a polarizing layer, a photochromic layer, a melanin layer, a mirror layer, a color management layer, an infrared filter and a reflector layer and any combinations thereof.
13. (Original) An optical element according to claim 9, wherein said first layer is a functional layer.
14. (Original) An optical element according to claim 13, wherein said first layer is selected from a group comprising: a polarizing layer, a photochromic layer, a melanin layer, a mirror layer, a color management layer, an infrared filter and a reflector layer and any combinations thereof.
15. (Original) An optical element according to claim 9, wherein said first and third layers are resinous layers.
16. (Original) An optical element according to claim 2, further comprising an injection molded substance disposed adjacent said second layer.

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17. (Original) An optical element according to claim 9, further comprising an injection molded substance disposed adjacent said third layer.
18. (Original) An optical element according to claim 16, wherein said injection molded substance contacts said first layer.
19. (Original) An optical element according to claim 17, wherein said injection molded substance contacts said first layer.
20. (Original) An optical element according to claim 16, wherein said injection molded substance is selected from the group comprising: polycarbonate, polysulfone, cellulose ester resin, homopolymer or copolymer of (meth)acrylates, polyamide, copolymer of olefin, or copolymer of cycloolefin.
21. (Original) An optical element according to claim 17, wherein said injection molded substance is selected from the group comprising: polycarbonate, polysulfone, cellulose ester resin, homopolymer or copolymer of (meth)acrylates, polyamide, copolymer of olefin, or copolymer of cycloolefin.
22. (Currently amended) A method of making an optical element for use in a mold comprising: providing a first layer having a lamination side and a non-lamination side; providing a second layer substance, said second layer substance being functional; and, configuring said second layer functional substance against said lamination side of said first layer such that a size of said second layer functional substance is less than a size of said first layer and less than an inner diameter of the mold.
23. (Original) A method of making an optical element according to claim 22, further comprising applying an injection molded substance against said second layer functional substance and thereby increasing said size of said second layer functional substance.
24. (Original) A method of making an optical element according to claim 22, further comprising applying a third layer against said second layer substance.

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25. (Original) A method of making an optical element according to claim 24, further comprising apply an injection molded substance against said third layer and thereby increasing said size of said second layer functional substance.

26. (Original) A method of making an optical element according to claim 22, wherein the providing of said second layer functional substance includes providing a layer from the group comprising: a polarizing layer, a photochromic layer, a melanin layer, a mirror layer, a color management layer, an infrared filter and a reflector layer and any combinations thereof.

27. (Original) A method of making an optical element according to claim 22 wherein the providing of said first layer includes providing a first layer functional substance.

28. (Original) A method of making an optical element according to claim 24, wherein the providing of a first layer functional substance includes providing a layer from the group comprising: a hard-coat layer, an anti-reflection layer, an anti-fog layer, a mirror layer, and a coloring layer.

29. (Original) A method of making an optical element according to claim 22, wherein the configuring of said second layer functional substance includes sizing a diameter of said second layer functional substance to be less than a diameter of said first layer.

30. (Previously presented) A method of making an optical element according to claim 29, wherein the configuring of said second layer functional substance includes sizing said second layer functional substance diameter to be approximately 0.5 mm to 5 mm less than said first layer diameter.

31. (Original) A method of making an optical element according to claim 22, further comprising applying an injection molded substance against said first and second layers, said injection molded substance being selected from the group comprising: polycarbonate, polysulfone, cellulose ester resin, homopolymer or copolymer of (meth)acrylates, polyamide, copolymer of olefin, or copolymer of cycloolefin.

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32. (Currently amended) A functional wafer insertable into a mold for use in making an injection molded lens comprising: a first layer having a first size; a second layer having a second size; said second layer disposed adjacent said first layer; and, wherein said second size is smaller than said first size and smaller than an inner diameter of the mold.

33. (Previously presented) A functional wafer insertable into a mold for use in making an injection molded lens according to claim 32, wherein said first layer is a functional layer.

34. (Previously presented) A functional wafer insertable into a mold for use in making an injection molded lens according to claim 33, wherein said second layer is a functional layer.

35-36. (Cancelled)

37. (Previously presented) A method of forming a lens having a functional layer, the method comprising:

providing a first layer;

providing a functional layer smaller in size than the first layer;

forming a wafer by laminating the functional layer to the first layer such that a space is formed between an outer edge of the first layer and an outer edge of the functional layer;

placing the wafer in a mold; and

injecting molten lens material into the mold to form a lens.

38. (Previously presented) The method of claim 37 wherein forming a wafer comprises forming a wafer by laminating the function layer to the first layer such that a ledge is formed between an outer edge of the first layer and an outer edge of the functional layer

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due to the difference in size between the first layer and the functional layer, and laminating a third layer to a side of the functional layer opposite the first layer.

39. (Previously presented) The method of claim 38 wherein laminating a third layer to a side of the functional layer opposite the first layer comprises laminating a third layer sized the same as the functional layer to a side of the functional layer opposite the first layer.

40. (Previously presented) The method of claim 38 wherein laminating a third layer to a side of the functional layer opposite the first layer comprises laminating a third layer sized the same as the first layer to a side of the functional layer opposite the first layer.

41. (Previously presented) The method of claim 37 wherein providing a functional layer smaller in size than the first layer comprises providing a functional layer from a group including a polarizing layer, a photochromic layer, a melanin layer, a mirror layer, a color management layer, an infrared filter and a reflector layer and any combinations thereof.

42. (Previously presented) The method of claim 37 wherein providing a first layer comprises providing a functional substance.

43. (Previously presented) The method of claim 37 wherein providing a functional layer smaller in size than the first layer comprises providing a functional layer having a diameter that is approximately 0.5mm to 5mm less than a diameter of the first layer.

44. (Previously presented) The method of claim 37 wherein injecting molten lens material into the mold to form a lens comprises injecting a molten lens material from the group consisting of: polycarbonate, polysulfone, cellulose ester resin, homopolymer or copolymer of (meth)acrylates, polyamide, copolymer of olefin, or copolymer of cycloolefin.

45. (Previously presented) The method of claim 37 wherein injecting molten lens material into the mold to form a lens comprises injection molten lens material which is the same material as the first layer.